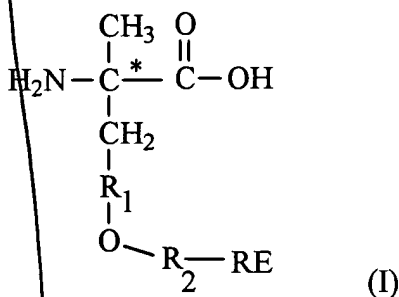


We claim:

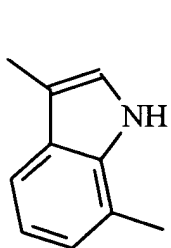
1. A compound of formula (I), or a pharmaceutically acceptable salt thereof:



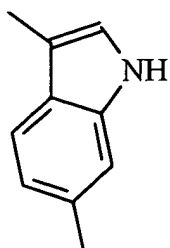
wherein

the C marked with an asterisk represents a chiral center and the compound is present in the L-form, the D-form or as a racemic mixture;

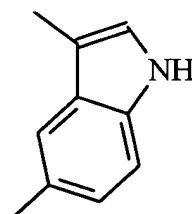
R<sub>1</sub> is selected from the group consisting of a single bond, phenyl, and a group of formula (a), (b), (c) or (d)



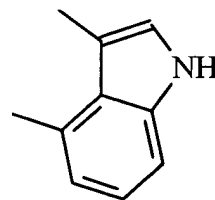
(a),



(b),



(c),



(d);

R<sub>2</sub> is C<sub>1</sub>-C<sub>7</sub> alkyl; and

RE is selected from the group consisting of <sup>75</sup>Br, <sup>124</sup>I and <sup>18</sup>F.

2. The compound of claim 1, wherein R<sub>1</sub> is a single bond.
3. The compound of claim 1, wherein R<sub>1</sub> is phenyl.
4. The compound of claim 3, wherein the -O-R<sub>2</sub>-RE group is *para* the CH<sub>2</sub> group on the phenyl.

5. The compound of claim 3, wherein the -O-R<sub>2</sub>-RE group is *meta* the CH<sub>2</sub> group on the phenyl.

6. The compound of claim 3, wherein the -O-R<sub>2</sub>-RE group is *ortho* the CH<sub>2</sub> group on the phenyl.

7. The compound of claim 1, wherein R<sub>1</sub> is a group of formula (a), (b), (c) or (d).

8. The compound of claim 1, wherein R<sub>2</sub> is C<sub>2</sub>-C<sub>6</sub> alkyl.

9. The compound of claim 1, wherein R<sub>2</sub> is C<sub>2</sub>-C<sub>5</sub> alkyl.

10. The compound of claim 1, wherein the compound is present in the L-form.

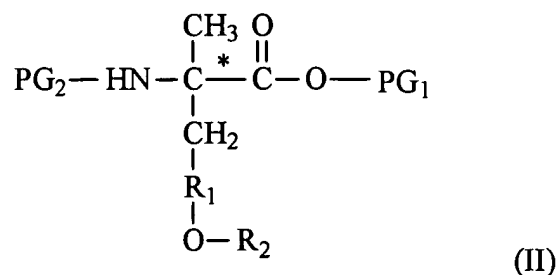
11. The compound of claim 1, wherein the compound is present in the D-form.

12. The compound of claim 1, wherein the compound is present as a racemic mixture.

13. The compound of claim 1, wherein the compound is 3-[<sup>18</sup>F]fluoro(C<sub>2</sub>-C<sub>6</sub>)-α-methyl tyrosine.

14. The compound of claim 13, wherein the compound is 3-[<sup>18</sup>F]fluoropropyl-α-methyl tyrosine.

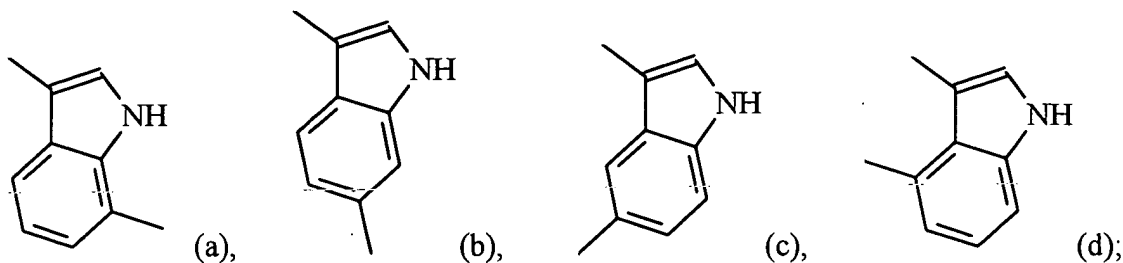
15. A compound of formula (II):



wherein

the C marked with an asterisk represents a chiral center and the compound is present in the L-form, the D-form or as a racemic mixture;

R<sub>1</sub> is selected from the group consisting of a single bond, phenyl, and a group of formula (a), (b), (c) or (d)



R<sub>2</sub> is H or a group -R<sub>3</sub>-O-R<sub>4</sub>, wherein R<sub>3</sub> is C<sub>1</sub>-C<sub>7</sub> alkyl and R<sub>4</sub> is H or a leaving group;

PG<sub>1</sub> is a carboxyl protecting group; and

PG<sub>2</sub> is an amino protecting group.

16. The compound of claim 15, wherein PG<sub>2</sub> is a Boc group.
17. The compound of claim 15, wherein PG<sub>1</sub> is C<sub>1</sub>-C<sub>3</sub> alkyl.
18. The compound of claim 15, wherein R<sub>1</sub> is a single bond.
19. The compound of claim 15, wherein R<sub>1</sub> is phenyl.
20. The compound of claim 19, wherein the -O-R<sub>2</sub> group is *para* the CH<sub>2</sub> group on the phenyl.
21. The compound of claim 19, wherein the -O-R<sub>2</sub> group is *meta* the CH<sub>2</sub> group on the phenyl.

22. The compound of claim 19, wherein the -O-R<sub>2</sub> group is *ortho* the CH<sub>2</sub> group on the phenyl.

23. The compound of claim 15, wherein R<sub>1</sub> is a group of formula (a), (b), (c) or (d).

24. The compound of claim 15, wherein R<sub>2</sub> is H.

25. The compound of claim 15, wherein R<sub>2</sub> is a group -R<sub>3</sub>-O-R<sub>4</sub>.

26. The compound of claim 25, wherein R<sub>3</sub> is C<sub>2</sub>-C<sub>6</sub> alkyl.

27. The compound of claim 25, wherein R<sub>3</sub> is C<sub>2</sub>-C<sub>5</sub> alkyl.

28. The compound of claim 25, wherein R<sub>4</sub> is H.

29. The compound of claim 25, wherein R<sub>4</sub> is a sulfonyl group.

30. The compound of claim 29, wherein R<sub>4</sub> is selected from the group consisting of tosyl, trifyl, mesyl, trimsyl, tripsyl, brosyl and nosyl.

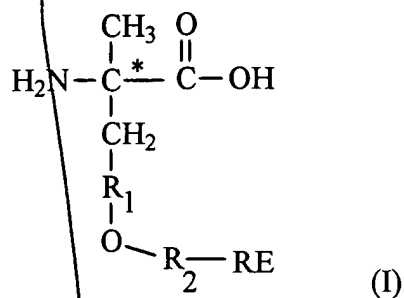
31. The compound of claim 30, wherein R<sub>4</sub> is selected from the group consisting of tosyl, trifyl and mesyl.

32. The compound of claim 31, wherein R<sub>4</sub> is tosyl.

33. The compound of claim 32, wherein R<sub>3</sub> is propyl.

34. A method of synthesizing a compound of formula (I):

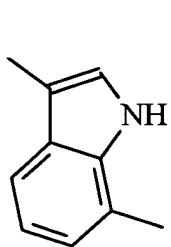
Sup  
R<sub>1</sub>



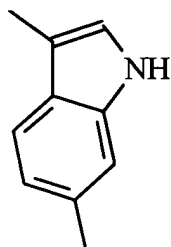
wherein

the C marked with an asterisk represents a chiral center and the compound is present in the L-form, the D-form or as a racemic mixture;

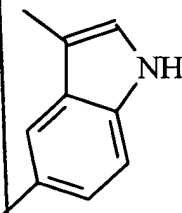
$\text{R}_1$  is selected from the group consisting of a single bond, phenyl, and a group of formula (a), (b), (c) or (d)



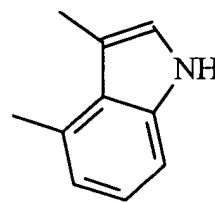
(a),



(b),



(c),

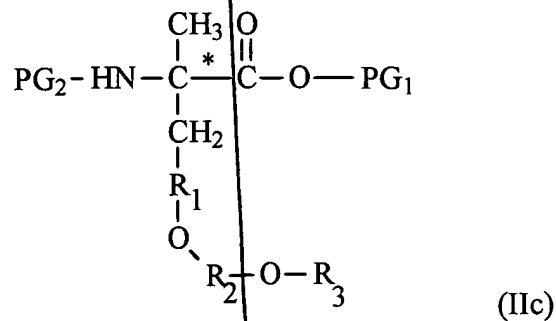


(d);

$\text{R}_2$  is  $\text{C}_1$ - $\text{C}_7$  alkyl, and

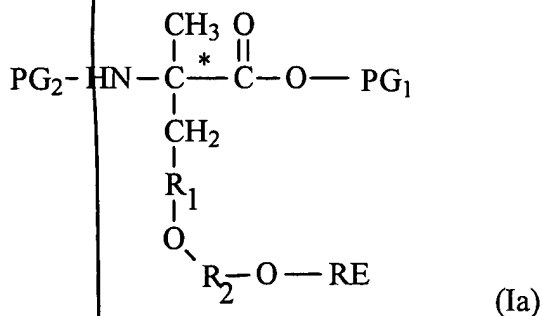
$\text{RE}$  is selected from the group consisting of  $^{75}\text{Br}$ ,  $^{124}\text{I}$  and  $^{18}\text{F}$ ,  
the process comprising the following steps:

(1) reacting a compound of formula (IIc):



wherein  $\text{R}_1$  and  $\text{R}_2$  are the same as above,  $\text{R}_3$  is a leaving group,  $\text{PG}_1$  is a carboxyl protecting group and  $\text{PG}_2$  is an amino protecting group,

with a salt of RE, wherein RE is the same as above, to produce a compound of formula (Ia):



wherein R<sub>1</sub>, R<sub>2</sub>, RE, PG<sub>1</sub> and PG<sub>2</sub> are the same as above; and

(2) removing the protecting groups.

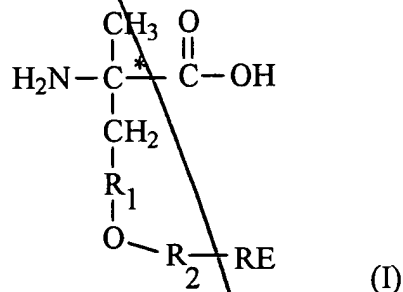
35. The method of claim 34, wherein R<sub>3</sub> is selected from the group consisting of tosyl, trifyl, mesyl, trimsyl, tripsyl, brosyl and nosyl.

36. The method of claim 35, wherein R<sub>3</sub> is selected from the group consisting of tosyl, trifyl and mesyl.

37. The method of claim 36, wherein R<sub>3</sub> is tosyl.

38. A method of imaging a tumor in a patient using positron emission tomography (PET) or single photon emission computed tomography (SPECT) imaging, the method comprising

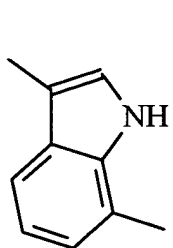
administering to the patient a tumor imaging effective amount of a compound of formula (I), or a pharmaceutically acceptable salt thereof:



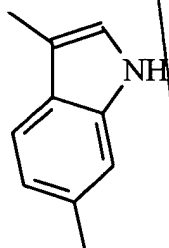
wherein

the C marked with an asterisk represents a chiral center and the compound is present in the L-form, the D-form or as a racemic mixture,

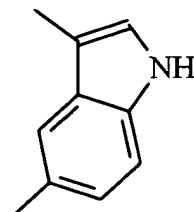
R<sub>1</sub> is selected from the group consisting of a single bond, phenyl, and a group of formula (a), (b), (c) or (d)



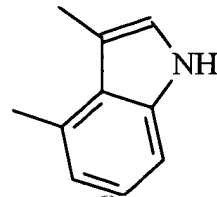
(a),



(b),



(c),



(d),

R<sub>2</sub> is C<sub>1</sub>-C<sub>7</sub> alkyl, and

RE is selected from the group consisting of <sup>75</sup>Br, <sup>124</sup>I and <sup>18</sup>F; and imaging the tumor using PET or SPECT imaging.

39. The method of claim 38, wherein the tumor is selected from the group consisting of brain, breast, prostate, colon, lung, liver, pancreas, gastric, lymphoma, uterine, cervical, extremities, sarcoma and melanoma.